

Remarks

Claims 25 – 33 are pending. Claims 1 – 24 and 34 – 61 were previously canceled and claims 62 – 79 were previously withdrawn.

Claim Rejections Under 35 U.S.C. §103(a)

Claims 25 – 30 and 33 were rejected under 35 U.S.C. 103(a) as being unpatentable over Altshuler et al. (U.S. Pat. No. 6,015,404) in view of Edwards (U.S. Pat. No. 6,692,490). The Office Action stated that “Edwards discloses in an analogous electrosurgical device that laser (Altshuler) and radiofrequency energy (electrodes as now claimed by the Applicant) are interchangeable.” (p. 3 of Office Action of January 22, 2007) The Applicant disagrees with this characterization of the references and respectfully traverses this rejection.

Claim 25 calls for “sensing with a sensor positioned adjacent the electrode the vibration of the organic tissue being ablated.” None of the prior art references teach this limitation.

Altshuler et al. teach the application of laser energy to the dermis and the use of a sensor to detect the temperature of the epidermis, or skin surface. A lens is placed on the surface of the skin to deliver energy to the dermis. A temperature sensor is provided in contact with the lens. Altshuler et al. describe the system as follows:

In particular, a temperature sensor 30 is provided in contact with lens 18 which generates an electrical output on line 32 which is indicative of lens temperature. Since lens 18 is in thermal contact with epidermis 22, the temperature of epidermis 22 can be accurately determined from measurements at lens 18.
(col. 4, ll. 46-51)

Altshuler et al. therefore “protect the skin not under treatment” while treating a separate portion of the skin. (abstract, emphasis added)

In contrast to the skin surface temperature detection described by Altshuler et al., claim 25 calls for sensing of the vibration of the tissue being ablated. There is no teaching or suggestion by Altshuler et al. to use a sensor to monitor the tissue being treated as called for in the claim, but rather Altshuler is limited to monitoring the skin

surface, adjacent to the lens. Because neither Altshuler et al. nor Edwards et al. teach this limitation of the claim, the claim is not obvious and the applicant requests that the Examiner withdraw the rejection.

Furthermore, the device disclosed in Edwards et al. (the Edwards device) is not analogous to the device taught by Altshuler et al. (the Altshuler device) as stated in the Office Action. The Altshuler device is specifically for laser dermatological procedures for the application of energy to the dermis. For example, the Altshuler device may be used to treat unwanted hair, visible veins or tattoos. (col. 3, l. 65 – col. 4, l. 4) As such, the Altshuler device delivers low levels of energy for delicate dermatological procedures which do not damage the skin. In contrast, the Edwards device treats body tissue “by altering the shape, density, relative geometry or tension of that body tissue” (col. 1, l. 67 – col. 2, l. 1) for treatment of disorders in various parts of the body, including urinary incontinence and other disorders. The treatment “can include one or more of, or some combination of ablation, nerve modulation, three-dimensional tissue shaping, drug delivery, mapping, stimulating, shrinking (by creation of a pattern of thermal lesions) and reducing strain on structures by altering the geometry thereof and providing bulk to particularly defined regions.” (abstract) However, Edwards et al. do not teach or suggest that the Edwards device may be used for dermatological procedures. Therefore, while the Altshuler device is specifically directed to delicate laser dermatological procedures, the Edwards device may be used for wide ranging applications but there is no indication that it may be used for dermatological procedures like those performed by the Altshuler device. The Applicant does not believe that the Altshuler device and the Edwards device are analogous.

Although the Edwards device may be used to deliver various types of energy, because the uses of the Edwards device are widely divergent, one can not conclude that any of the various types of energy disclosed by Edwards et al. are analogous with any other type of energy. For example, Edwards et al. teach treatments that include “nerve modulation, three-dimensional tissue shaping, drug delivery, mapping, stimulating, shrinking (by creation of a pattern of thermal lesions) and reducing strain on structures by altering the geometry thereof and providing bulk to particularly defined regions.” (col. 3, ll. 47 – 52) Because the Edward device may be used for such diverse functions, it

follows that a wide variety of energy forms may be necessary to perform those functions. It does not suggest that a particular form of energy is interchangeable with another form of energy for any particular function. Rather, Edwards et al. merely teach that there are a wide variety of forms of energy that may be used for a wide variety of purposes. Therefore, because Edwards et al. does not teach or suggest that any of the forms are interchangeable much less that laser energy and radiofrequency energy are interchangeable, there would be no motivation to provide radiofrequency energy using the Altshuler device. For this additional reason, the Applicant requests that the Examiner withdraw this rejection.

Claims 31 and 32 were rejected under 35 U.S.C. 103(a) as being unpatentable over Altshuler in view of Vesely et al. (U.S. Pat. No. 6,246,898). The Applicant respectfully traverses this rejection.

Claim 31 calls for the sensor of claim 25 to be a piezoelectric crystal, while claim 32 calls for the sensor of claim 25 to be a piezoelectric polymer. Claim 25 calls for sensing vibration of the tissue with the sensor. Therefore claims 31 and 32 call for the piezoelectric crystal and piezoelectric polymers to be vibration sensors which sense tissue vibration.

The piezoelectric sensors of Vesely et al. (the Vesely sensors) do not detect tissue vibration as called for in dependent claims 31 and 32. Rather the Vesely sensors are transceivers which generate and receive ultrasound signals as part of a 3-D tracking system. The Vesely sensors detect ultrasound waves generated by other transceivers and not tissue vibration. Because Vesely et al. do not teach a piezoelectric crystal or piezoelectric polymer for detection of tissue vibration as called for in the claims, the Applicant requests withdrawal of this rejection for this additional reason.

Furthermore, the “fivefold” reasons cited in the office action as providing motivation to combine are relevant only to the Vesely invention and are unrelated to Altshuler. The cited list of five items is merely a discussion of the problems with prior art ultrasound measurement systems. Such problems are entirely unrelated to the Altshuler device. One would not look to Vesely et al. for providing a solution to these problems in the Altshuler device, because these problems do not exist with the Altshuler device. Therefore these problems do not provide a motivation to combine Vesely et al.

and Altshuler et al. Furthermore, as discussed above, because the sensors of Vesely do not sense tissue vibration, there would be no motivation to combine Vesely et al. and Altshuler et al.

The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,

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